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Plate CXIII.

Fig 14. The rhizome with the leaves and an inflorescence of *Diclytra Cucullaria* Natural size.

Fig. 15. Part of the same, showing the petioles of two normal leaves (L), and the base of the inflorescence, (I). The scale-like leaves have been removed, and in their axils are clusters of small tuber-shaped leaves to be seen.

Fig. 16. One of these clusters from the axil of a scale-like leaf.

Fig. 17. A tuber-shaped leaf, showing the small rudimentary toothed blade.

Fig. 18. A small specimen, developed from a tuber-shaped leaf, showing the tuberous base of a leaf, of which the petiole has faded, and a short axis, carrying a root, one scale-like and one normal leaf. 3 × natural size.

Fig. 19. A similar plant with three scale-like leaves, surrounding the normal one. 3 × natural size.

Fig. 20. A similar plant, of which the scale-like leaves have dropped, and where the base of the normal leaf shows the tuberous swelling. 3 × natural size.

Fig 21. The base of a normal leaf, in the axil of which clusters of small tuber-like leaves are to be seen.

Fig. 22. Part of the rhizome of a specimen collected in August, showing a bud surrounded by tuber-like leaves.

Fig. 23. One of these tuber-like leaves at the same time, showing the cavity at the base, in which a bud is to be seen.

Fig. 24. The axillary bud, taken out from the cavity, showing two very young leaves.

Fig. 25. A mature specimen of *Krigia Dandelion*, showing the leafy rosette and the rhizome, natural size.

Fig. 26. The rhizome of another specimen, where a stolon has developed a leafy rosette, not being preceded by any tuber, as in Fig. 25. Natural Size.

U. S. National Museum, Washington, D. C. Aug. 1890.

Recent Contributions to the Literature of the Diatomaceæ.

La Structure de la Valve des Diatomees. Dr. Henri Van Heurck. (Annales de la Societé Belge de Microscopie. xiii. 1890).

By the aid of Zeiss's new apochromatic one-tenth inch objective of 1.63 N. A., using monochromatic sunlight, compensating eye-piece and condenser 1.6 N. A., Dr. Van Heurck has produced a series of photographs which go far towards clearing up our ideas of the structure of the diatom valve. From his researches he derives the following conclusions:

1. Diatom valves consist of two membranes or thin films, and of an intermediate layer, the latter being pierced with openings. The outer membrane is very delicate. It is supposed that these membranes are sufficiently permeable to allow circulation by endosmose, though they have no real openings during the life of the diatom.

2. When the openings of the interior portion are arranged in alternate rows, they assume the hexagonal form; when in straight rows, then the openings are square or oblong.

Three phototype plates accompany the article. A very interesting feature is the resolution of *Amphipleura pellucida* into beads. The photograph of *Pleurosigma angulatum* shows that the opinion of the old microscopists was well-founded, and that the alveoles are really hexagonal. Dr. Van Heurck considers that the intermediate beads are produced by bad focusing of the alveoles.

Diatoms—Their Nutrition and Locomotion. J. D. Cox. (The Microscope, x, No. 7).

Ex-Governor Cox has long been a faithful student of the structure and life-history of diatoms, and has contributed several valuable papers upon the subject. In this paper he advances the following ideas:

1. It is not necessary to regard the raphe as a part of the mechanism of nutrition, as the life-sustaining osmotic process goes on through the alveoles, whose imperfectly silicified tissues at top and bottom permit the process of nutrition to go on freely.

2. The raphe is distinctively a part of the locomotive contrivance of diatoms, and it is probably the seat of a line of cilia working in a groove which is a true cleft.

Diatomees fossiles du Japon. J. Brun et J. Tempère. (Mémoires de la Societé de Physique et d'Histoire Naturelle de Geneve. xxx. No. 9).

This is an excellent monograph upon the fossil diatoms found in the cementstein of Sendai and Yedo, Japan.

Accompanying the seventy-four pages of text there are nine phototype plates containing 135 figures.

It is an interesting fact that three of the new species figured in the volume, viz.: *Tabulina Testudo*, *Brunia Japonica* and *Pleurosigma Hungaricum* are also found in the recently discovered fossil deposit at Atlantic City, N. J.

A Revision of the Genus Aulacodiscus, Ehrenberg. John Rattery, M.A., B.Sc., F.R.S.E. Journal of the Royal Microscopical Society, June, 1888.

A Revision of the Genus Auliscus, Ehrenberg, and of some allied

Genera. Same author. Journal of the Royal Microscopical Society, December, 1888.

A Revision of the Genus Actinocyclus, Ehrenberg. Same author. Journal of the Quekett Microscopical Club, July, 1890.

A Revision of the Genus Coscinodiscus, Ehrenberg, and of some allied Genera. Same author. Proceedings of the Royal Society of Edinburgh, Vol. xvi.

Mr. Rattery is entitled to the everlasting gratitude of diatomists for his extended labors in endeavoring to reduce to a system the classification of the many species included in the genera named. The artificial key appended to each will be found of especial value in tracing species. Most diatomists, however, will probably regret that the author did not do more in the way of condensing the number of species.

Le Diatomiste. J. Tempère. Paris.

This is a quarterly journal devoted to the Diatomaceæ. Three numbers have already appeared. Each number is accompanied by two phototype plates. As Prof. Tempère is assisted by such well-known authorities as Messrs. Brun, Cleve, Grove and Peragallo, it is likely that the character of the journal will be well sustained.

In the number for June, 1890, M. Peragallo gives a tabular list of species of *Coscinodiscus* as given by Schmidt, Van Heurck and Castracane, and in parallel columns the synonyms according to Rattery. This table is of especial value, and will save the student much research.

C. H. KAIN.

Salvinia natans (L.) All., in Minnesota.

This very interesting heterosporous pteridophyte is apparently rare in North America. It is reported in the fifth edition of Gray's Manual as probably not occurring in North America, although Pursh is supposed to have found it in Western New York. In the sixth edition this uncertainty is somewhat dispelled by a report of the plant from Missouri, but no authority is given for the station. It is, therefore, an important discovery which this note chronicles, viz., that *Salvinia natans* (L.) All., grows in Sweeney's Twin Lake, four miles west of the city of Minneapolis. Only a few plants have been found and these have been trans-